

11 the jacket and the core being sufficient to retain the integrity of the bullet on firing
12 until impact, said bullet having a weight that is at least 80% that of a comparable
13 bullet for such firearm, said comparable bullet being formed from lead.

REMARKS

Status

Claims 38-58 were originally filed. In response to a restriction requirement, claims 40, 44, 45, 49, 50, 52 and 57 were withdrawn from consideration. The present amendment does not add or cancel any claims. Accordingly, it is now claims 38, 39, 41-43, 46-48, 51, 53-56 and 58 which are at issue.

The Office Action

In the Office Action mailed September 29, 2000, the Examiner rejected claims 38, 39, 41-43, 46-48, 51, 53-56, and 58 under 35 USC 103 as being unpatentable over U.S. Patent 5,616,642 of West in view of U.S. Patent 4,517,898 of Davis. Applicant thanks the Examiner for the search, the Office Action, and for the explanation of the basis of the rejections.

The Present Invention

The present invention, as now claimed, is directed to a lead-free bullet which is capable of retaining markings formed by its passage through a firearm barrel. The bullet of the present invention eliminates pollution hazards associated with heretofore employed lead-based bullets and has the additional advantage of retaining firearm barrel markings, which can facilitate law enforcement investigations. The bullet of the present invention includes a core member which

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is formed from a filler material bound together by a polymeric material. The polymer material employed in the present invention is either an amorphous polymer or a low crystallinity polymer. The bullet further includes a jacketing member which is either formed from a metal or from a thermoplastic polymer which has a softening point in excess of firearm barrel temperatures. Because of its composition, the jacket retains and preserves firearm barrel markings, enabling a fired bullet to be correlated with the firearm from which it came. As will be detailed hereinbelow, Applicant respectfully submits that this combination of features is neither shown nor suggested in the prior art.

The Rejection

All pending claims were rejected under 35 USC 103 as being obvious over the West patent taken in view of the Davis patent.

It is the Examiner's position that the West patent discloses a bullet comprised of copper particles bonded with a polymeric material. The Examiner acknowledges that the West bullet does not include a jacketing member; but, holds that it would be obvious to include a jacket, of the type disclosed in the Davis patent, so as to approximate the present invention. Applicant respectfully submits that the principles of the present invention are not shown or suggested in the prior art, and that the present invention is patentable thereover.

1. The present invention is not obvious over the suggested combination of West and Davis. There is no motivation leading one of skill in the art to include any jacketing member in the bullet of West; furthermore, the disclosure of West teaches away from the inclusion of any jacketing member therein.

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The West patent is directed to lead-free, frangible practice bullets of the type used at target ranges and the like. It must be kept in mind that the bullets of West are intended for use in shooting ranges, and are specifically referred throughout the specification of West as being frangible. In this regard see column 3, lines 64-66. Frangibility is important so that the bullets "will break upon impact with any hard surface." (Column 3, line 66). The bullets of West are fabricated from a particulate material such as metal powder, held together with a polymeric binder. The binder is primarily comprised of a highly crystalline polymer such as a methacrylate together with a minor amount of an ionomer. There is no teaching in West of the inclusion of any jacketing member in the bullet structure. The Examiner recognizes this fact, and cites to the Davis patent for the showing of jacketed bullets.

The Davis patent is directed to a conventional, lead-based military bullet which includes a full metal jacket, and was cited by the Examiner for the teaching of the fact that jacketed bullets are known in the art. Applicant concedes that this is the case; but, notes for the record that the bullet of Davis is lead based and does not include any core member comprised of a composite of polymer and filler.

Applicant respectfully submits that there is no teaching of record which would motivate one of skill in the art to combine the jacketing member of Davis with the composite core of West. In the Office Action, the Examiner states that the jacket of Davis would be used "to protect the barrel and to retain the jacket surrounding the core when using the bullet of West." Applicant respectfully submits that this is not a sufficient showing of any motivation. First of all, there is no teaching in Davis or West that the jacketing member serves to protect the



barrel of a firearm. In fact, the logical assumption is the opposite. The jacketing member of Davis is formed from steel, copper, or alloy materials, all of which are harder than the lead core of the Davis bullet, or the composite bullet of West. The teaching in Davis is that the reason for the jacketing is to comply with the international laws of warfare, and in this regard see column 1, lines 30-40. Furthermore, there is no teaching in West or Davis of any need to protect a firearm barrel by including any type of jacketing on a bullet.

Applicant further notes that all teaching in West is against the inclusion of any jacketing member, since it is a stated object of West to provide a practice bullet which disintegrates upon impact. As is specifically taught in Davis, a jacketing member functions to retain the integrity of a bullet upon impact (column 1, lines 37-39). Therefore, Applicant respectfully submits that the West patent specifically teaches away from the inclusion of any jacketing member therein. In view of the foregoing, it would not be obvious to include a jacketing member in the bullet of West; and in fact, inclusion of a jacketing member is counter the teaching of the prior art. Therefore, the rejection under 35 USC 103 is improper.

2. Even assuming that there was motivation to include a jacketing member in the bullet of West, the postulated combination would still not approximate the presently claimed invention. Applicant respectfully points out to the Examiner that all claims of the present invention require that the polymeric component of the bullet core of the present invention be either an amorphous polymer or a low crystallinity polymer. The polymeric component of the West bullet is specifically described as being a highly crystalline polymer. In this

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regard, see column 4, line 10, wherein highly crystalline polyester material is described as being superior to nylon insofar as it provides for better frangibility.

Applicant has rewritten sole independent claim 38 to make even more clear the composition of the polymeric component by adding a Markush grouping specifying that the polymeric component is selected from the group consisting of amorphous polymer, low crystallinity polymers, and combinations thereof. In view of this amendment, it should be very clear that the polymeric component of the present invention is very different from that of the West bullet. In view of the foregoing remarks, Applicant submits that the present claims are still further patentable over the postulated prior art combination (assuming that the combination could properly be made) since that combination would not approximate the presently claimed invention.

Conclusion

In view of the foregoing remarks, Applicant respectfully submits that (1) it would not be obvious to combine the bullet of West with the jacket of Davis since the prior art itself teaches away from the combination and (2) the postulated combination still would not approximate the present invention. Applicant respectfully submits that in view of the foregoing remarks, all claims at issue are patentable.



Applicant respectfully requests the Examiner to call the undersigned attorney collect with any questions, comments or suggestions which would place the application in still better condition for allowance.

Respectfully submitted,

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CERTIFICATE UNDER 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Box Non-Fee Amendment, Assistant Commissioner for Patents, Washington, D.C. 20231, on December 22, 2000.

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